Missing Et status

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  - cmsim bug is cured by Salavat's filter
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- Study of Et flow
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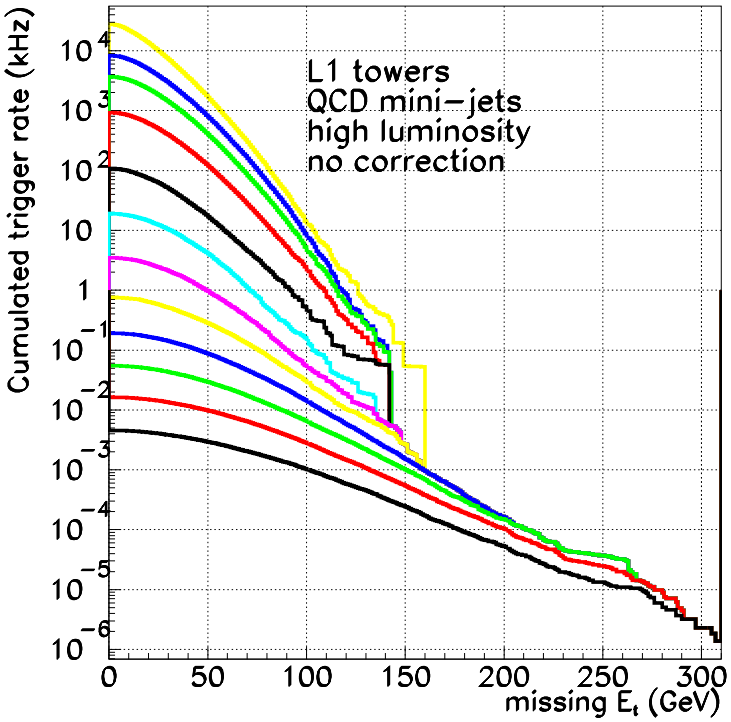
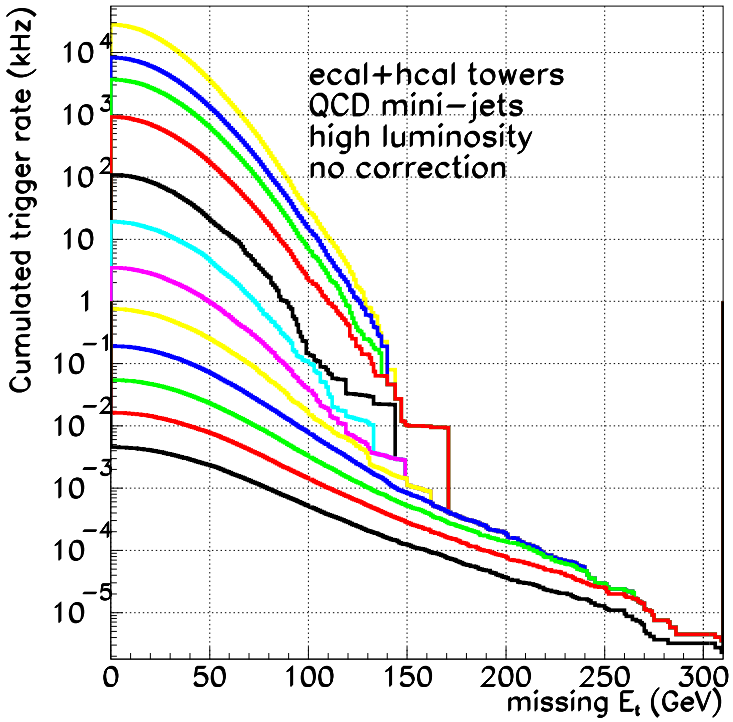
High lumi L1 & L2.0 rates

HCAL
JET
MET

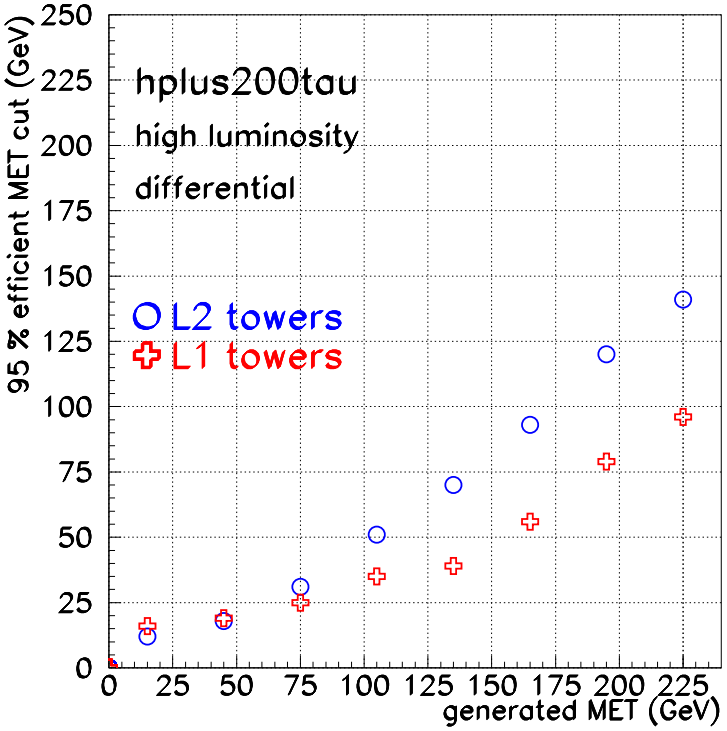
Rates look good with Salavat's filter (E<999 GeV genparts)
Missing statistics between 100 and 150 GeV
1 Hz threshold − L1 : ~180 GeV, L2 : ~170 GeV L2 < L1 !
1 kHz threshold − L1 ~ 125 GeV, L2 ~ 130 GeV

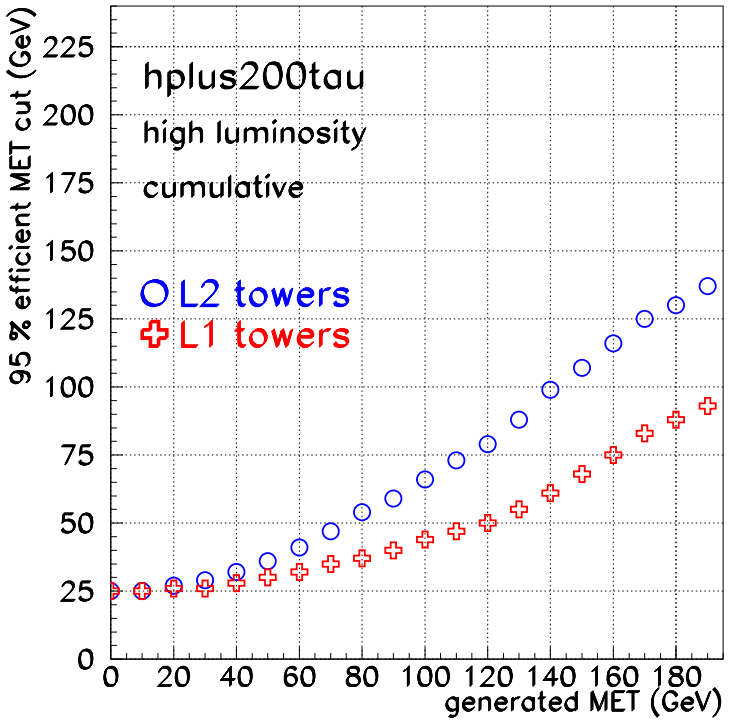




95% efficient cut

L2 performs much better than L1 for high MET for the signal too

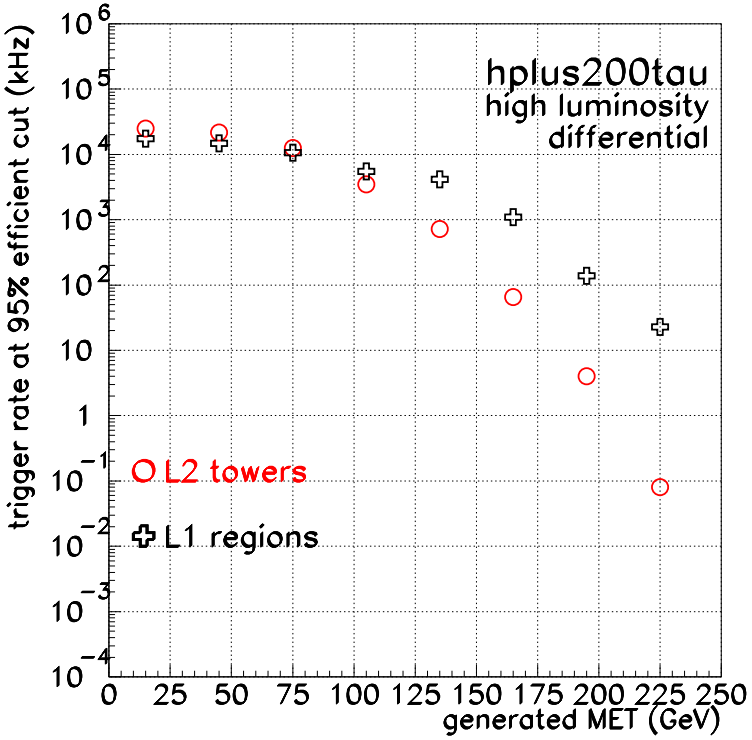


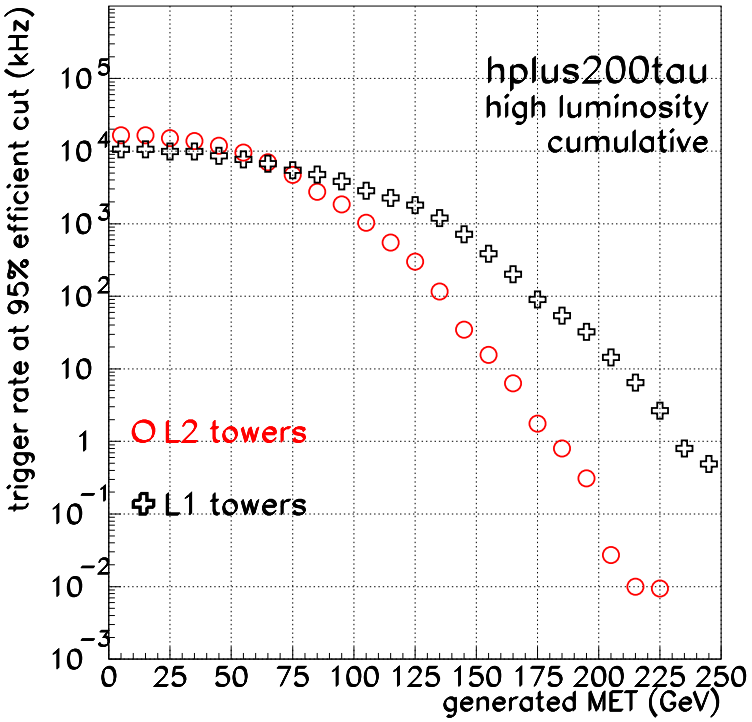


Rate at 95% efficient cut

HCAL
JET
MET

L2 performs much better than L1 for high MET

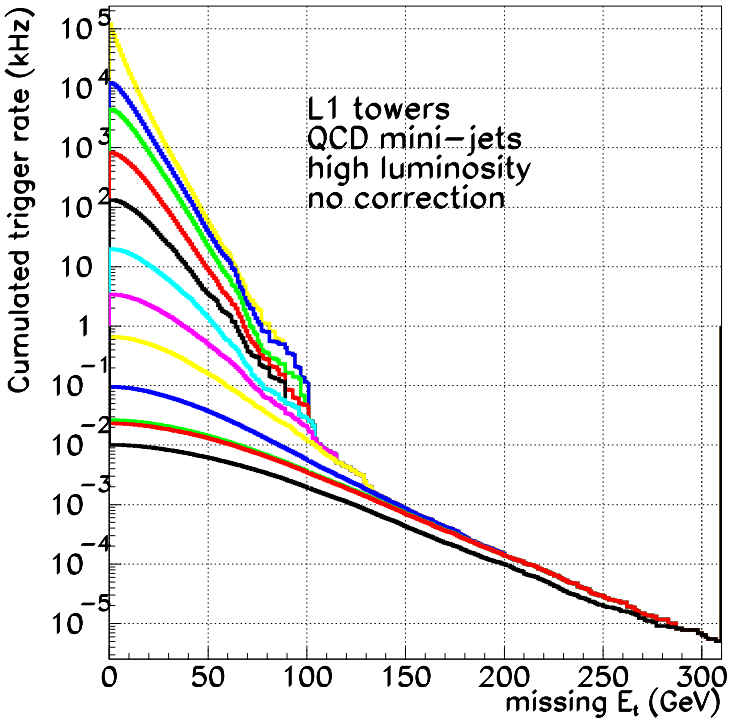


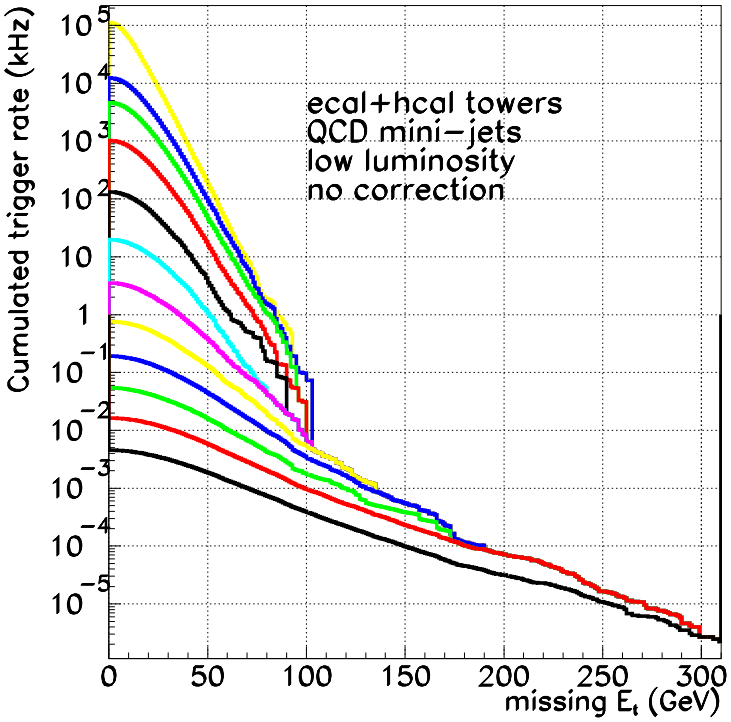


Low lumi rates

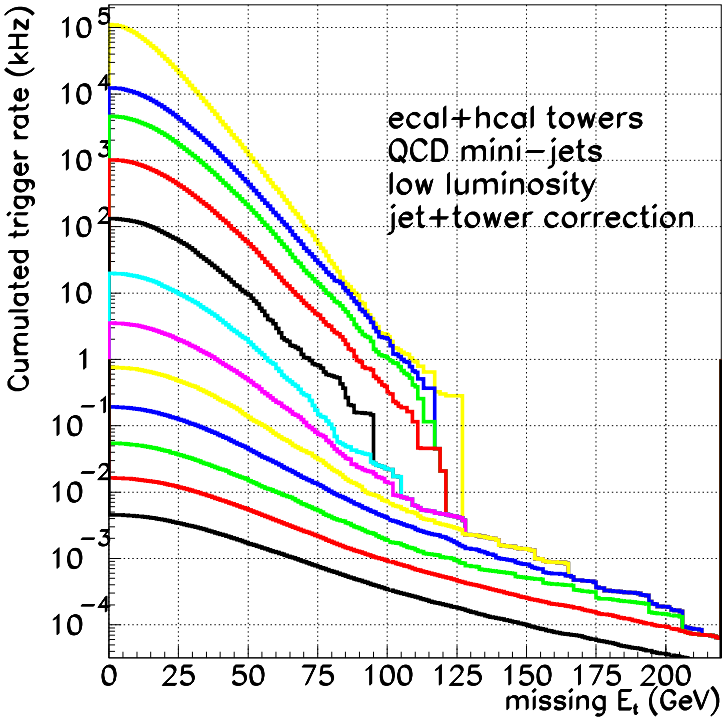
HCAL
JET
MET

Rates look good with Salavat's filter (E<999 GeV genparts)
Missing statistics between 100 and 150 GeV
1 Hz threshold − L1 : ~150 GeV, L2 : ~140 GeV L2 < L1 !
1 kHz threshold −L1 : ~ 80 GeV, L2 : ~85 GeV





Corrected low lumi rate



"type 2 correction" (Sasha)

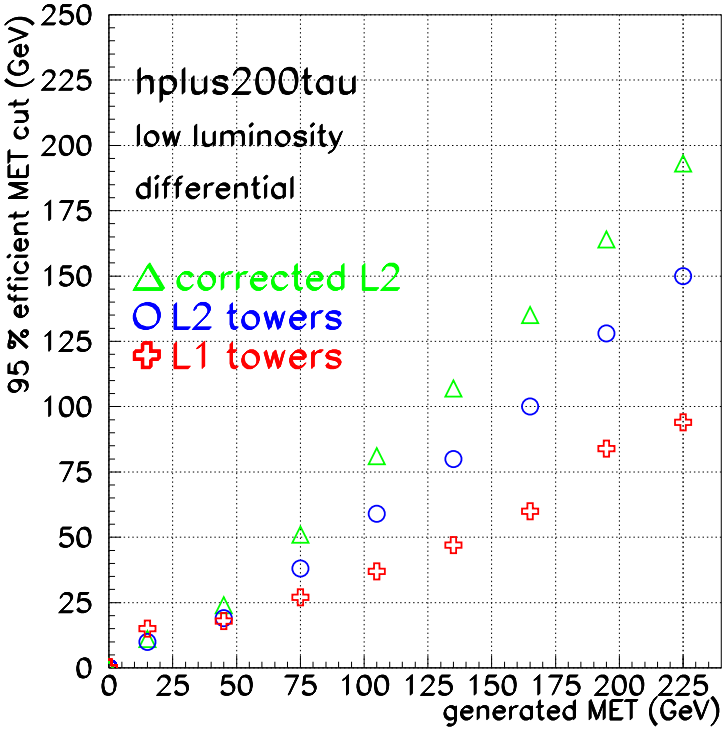
corrected jets + out−of−cone towers

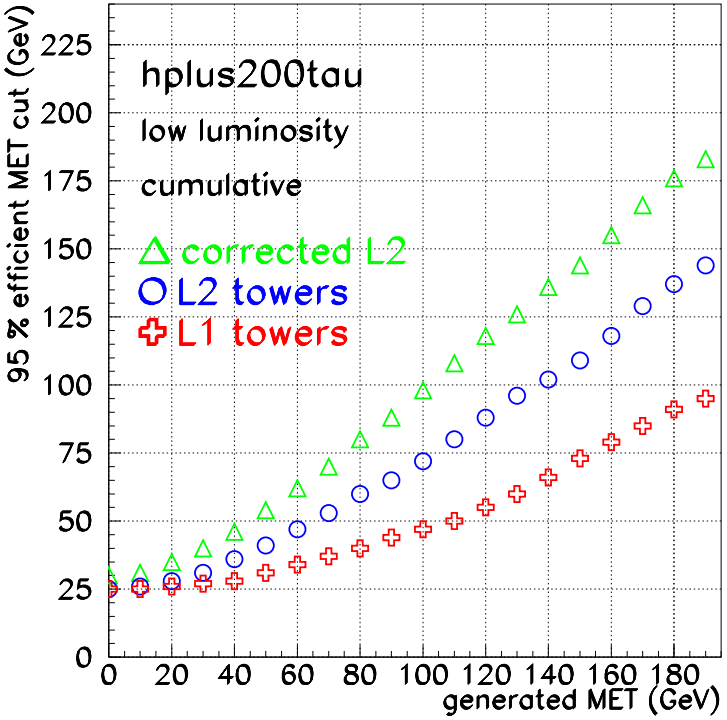
old low lumi correction

statistics hole is more apparent

95% efficient cut

L2 performs much better than L1 for high MET

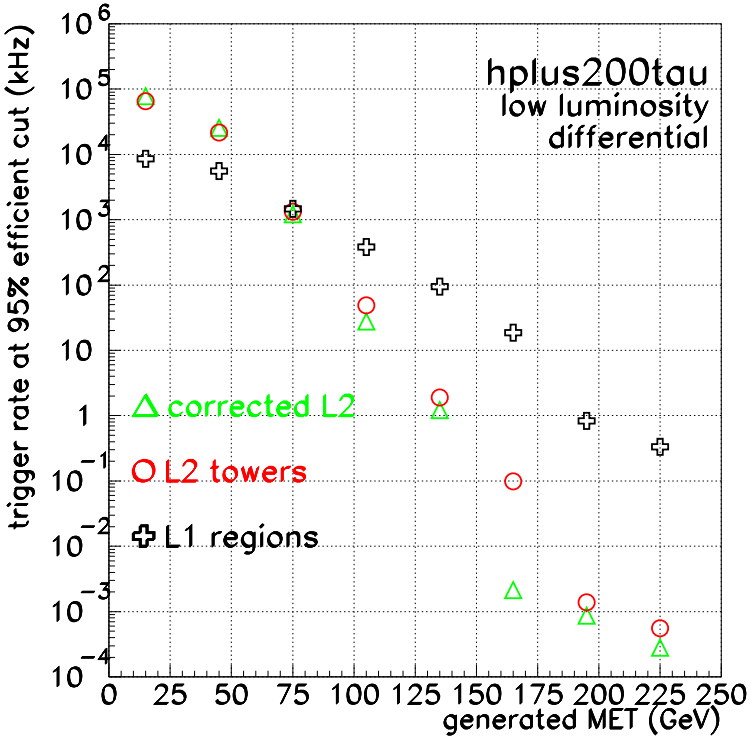


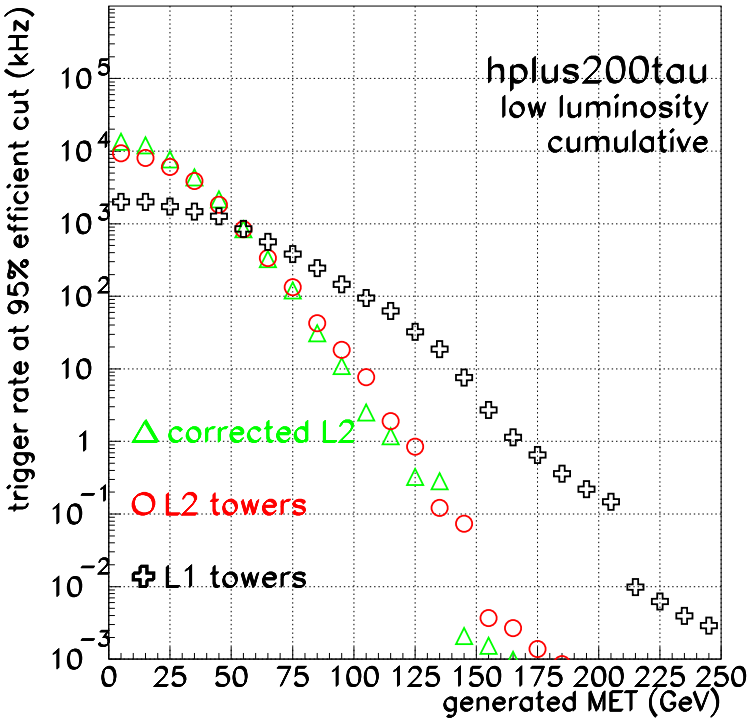


Rate at 95% efficient cut

HCAL
JET
MET

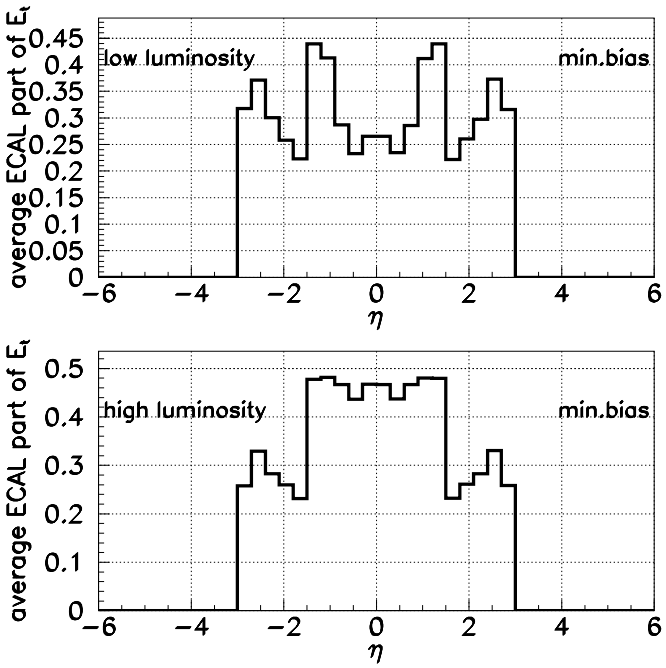
L2 performs much better than L1 for high MET
Slight improvement with L2.2 (corrected jets + out−of−cone towers)
it is a tau jet signal − correction overreconstructs the tau jets





ECAL part of pile–up Et

HCAL
JET
MET



Significant drop (50 %)at the barrel-endcap boundary (~ 1.5)

- **Low Et tracks go from the barrel to the endcap(?)**
- **They are mostly charged pions**

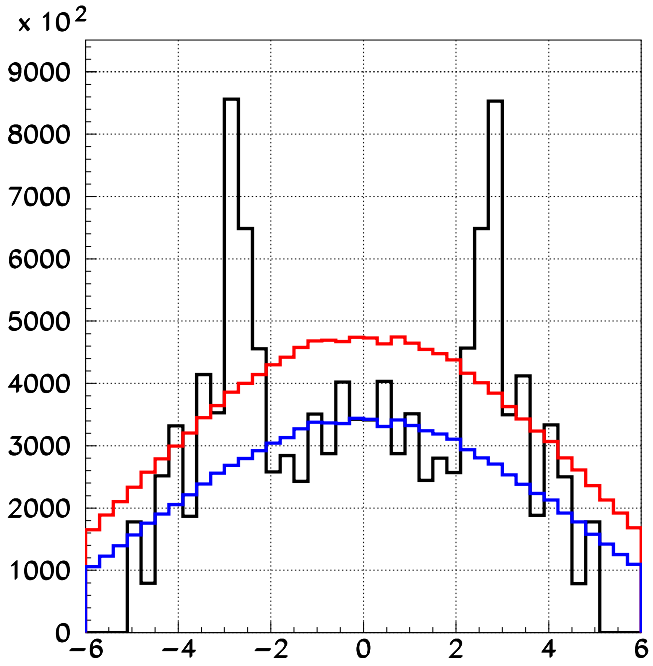
High lumi has more EM part at 0

- **Very soft part is of more photons(?)**
- **More chance to reach the tower threshold at high lumi (?)**

There must be an excess of Et in the endcap and the HF then

Gen&Calo Et flow(high lumi)

HCAL
JET
MET



The curves

- Offline tower Et flow
- Stable generated particles (rescaled by pile−up)
- Stable genpart without charged hadrons of Et < 1 GeV that can not reach the barrel

Study is not fine tuned

- Tower threshold (0.5 GeV now)
- Noise
- Pile−up

Summary

The HF (cmsim) bug is cured by Salavat's filter

- L2 performs better than L1 for MET > ~ 80 GeV
- L1 thresholds (1 kHz) – low lumi :80 GeV, high lumi : 125 GeV
- L2 thresholds (1 Hz) – low lumi :140 GeV, high lumi : 170 GeV

Effect of magnetic field

- Diverts energy from barrel to endcap
- According to my Dec2000 fast MC studies it has minor effect on MET with respect to energy measurment resolution and nonlinearity